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sanog, the figures from which are reproduced, and the suggestion advanced that they indicate Huron-Iroquois influence. A number of pipes of clay and stone and arrow heads of unusual shape are figured. The timely warning is given that of late years the manufacture of fraudulent specimens of this character has notably increased, and collectors should be on the alert. To detect these 'fakes,' Mr. Boyle recommends the use of a lens of low power by which it is easy to distinguish where the partination has been destroyed.

D. G. BRINTON.

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SCIENTIFIC NOTES AND NEWS.

BATRACHIANS AND CRUSTACEANS FROM THE SUBTERRANEAN WATERS OF TEXAS.

IN advanced sheets from the Proceedings of the U. S. National Museum, Dr. Leonard Stejneger describes a new genus of batrachians from an artesian well at San Marcos, Texas, and Mr. James E. Benedict describes a new genus and three new species of crustaceans from the same well. Dr. Stejneger gives some interesting details regarding the new species of salamander-like batrachians which he calls *Typhlomolge Rothbuni*. "The animals, by their want of external eyes and their white color, at once proclaimed themselves as cave-dwellers, but their extraordinary proportions, absolutely unique in the order to which they belong, suggest unusual conditions of life, which alone can have produced such profound differences. The most startling external feature is the length and slenderness of the legs, like which there is nothing among the tailed batrachians thus far known. While the normal number of fingers and toes is present (4 and 5), it is worthy of note that not only is there a great variation in the relative length of these members, but even the length of the legs in the same animal may differ as much as two millimeters. Viewed in connection with the well-developed, finned swimming tail, it can be safely assumed that these extraordinarily slender and elongated legs are not used for locomotion, and the conviction

is irresistible that in the inky darkness of the subterranean waters they serve the animal as feelers, their development being thus parallel to the excessive elongation of the antennæ of the crustaceans, of which I have been informed by Mr. Benedict. The external gills at once suggested that these animals might be only larvæ. The fact that one of them contained large eggs, and that another expelled three eggs after being caught, was no positive proof to the contrary, but in conjunction with the affinity of the species to other forms known to have persistent gills throughout life it makes it absolutely certain that we have to do with an adult and final animal."

THE FOREST RESOURCES OF THE UNITED STATES.

IN a recent circular prepared by Dr. B. E. Fernow for the Division of Forestry of the U. S. Department of Agriculture it is stated that the forest area of the United States (exclusive of Alaska) may be placed at somewhat less than 500,000,000 acres. This does not include much brush and waste land which is, and will remain for a long time, without any economic value. This area is very unevenly distributed; seven-tenths are found on the Atlantic side of the continent, only one-tenth on the Pacific coast, another tenth on the Rocky Mountains, the balance being scattered over the interior of the Western States. Both the New England States and the Southern States have still 50 per cent. of their area, more or less, under forest cover, but in the former the merchantable timber has been largely removed. The prairie States, with an area in round numbers of 400,000 square miles, contain hardly 4 per cent. of forest growth, and the 1,330,000 square miles—more than one-third of the whole country—of arid or semi-arid character in the interior contain practically no forest growth, economically speaking. The annual value of forest products is estimated at over \$1,000,000,000, which makes the industry next in importance to agriculture, exceeding in the value of its products the mining industries by more than 50 per cent.

CAPE COLONY GEOLOGICAL COMMISSION.

WE have already announced the appointment, by the government of Cape Colony, of a Geo-

logical Commission, which is to report to the Secretary for Agriculture. *Natural Science* in its May number states that: "The Commission has now appointed the following gentlemen to begin the work of surveying and mapping the country: Geologist, G. S. Corstorphine, B.Sc. (Edin.), Ph.D. (Munich); Assistant Geologists, A. W. Rogers, B.A. (Cantab.), and E. H. L. Schwarz, A.R.C.S. The Commission also intends to publish in June a bibliography of South African geology, which has been compiled by Mr. Harry Saunders, the Secretary to the Commission. During the last ten years some £35,000 has been spent by the government of Cape Colony for geological purposes; but complaints have been made that, although science may have been advanced by the contribution of a scattered paper or two to English publications, or by the enrichment of the British Museum with a skeleton of *Pareiasaurus*, still the Colony itself has nothing tangible to show. For the present Commission an appropriation of £1,500 has been made for the months of December, 1895—June, 1896. It is hoped that the future work of the Commission will be carried on by annual grants of £2,000. Although South Africa abounds in mining engineers, prospectors and such-like practical geologists, of more or less competence, still not much advance in our purely scientific knowledge of its geology has been made since the days of A. G. Bain. The Commission intends to devote its energies purely to the scientific aspects of the science and to steer as clear as possible of the ordinary speculator. By this means a secure foundation will be laid for the geology of Cape Colony. The Commission will be glad to receive copies of any geological publications, in return for which they offer to forward the reports on the geology of the Colony."

THE METRIC SYSTEM.

At the business meeting, held April 18, 1896, the Engineers' Club of Philadelphia discussed certain preambles and resolution in regard to the Metric System.

After a full debate it was decided that a letter ballot be taken on the following preambles and resolution:

WHEREAS, The adoption of an international

system of weights and measures is a subject of great practical importance, and

WHEREAS, The Metric System is the most convenient general system now in use, and its continued extension indicates that it is the only existing system of weights and measures that bears a promise of universal adoption, and

WHEREAS, It is believed that the difficulties in the way of its adoption are far more than compensated by the advantages to be gained by its use, and

WHEREAS, The question of the establishment of the Metric System is now under consideration by Congress; therefore be it

Resolved, That the Engineers' Club of Philadelphia respectfully urges its Representatives at Washington to advocate the adoption of the Metric System as the only legal standard in the United States, and to promote such international coöperation as will provide unity of practice amongst commercial nations.

The result of this letter ballot has just been announced and shows 100 to 60 in favor of the preambles and resolution.

GENERAL.

THE second annual meeting of the Botanical Society of America will be held in Buffalo, N. Y., on Friday and Saturday, August 21 and 22, 1896. The Council will meet at 1:30 p. m. on Friday, and the Society will be called to order at 3 p. m. by the retiring President, Dr. William Trelease, Director of the Missouri Botanical Garden. The President-elect, Dr. Charles E. Bessey, professor of botany in the University of Nebraska, will then take the chair. The afternoon session will be devoted to business. At the evening session the retiring President will deliver a public address on 'Botanical Opportunity.' The sessions for the reading of papers will be held on Saturday at 10 a. m. and 2 p. m. The Botanical Society of America is affiliated with the American Association for the Advancement of Science, whose sessions this year begin on Monday, August 24th, in Buffalo.

THE dissolution of the New England Meteorological Society was decided upon at a meeting held April 25th in Boston. The various undertakings of the Society have either been transferred to other organizations or discontinued

on account of the diversion of the interests of several of the more active members into other channels. The recent cessation of the *American Meteorological Journal* was finally the determining step in the disbanding of the Society.

MME. AUDIFFRED has given the French Academy of Sciences the sum of 800,000 fr., the interest of which will be awarded, without regard to nationality, for the discovery of a cure for consumption.

M. A. RENIER has bequeathed 2,000,000 fr. for the establishment of a physiological laboratory in Brussels.

THE *Scientific American*, which for fifty years has been an important factor in the diffusion and advancement of technical and general science, will publish an anniversary number on July 25th. It offers a prize of \$250 for the best essay, not exceeding 2,500 words in length, on 'The Progress of Invention During the Past Fifty Years,' which will be published in the anniversary number.

THE issue of *Nature* for May 7th will contain a photogravure of Sir Joseph Lister, President of the Royal Society, accompanied by a biographical sketch and an appreciation by Prof. Tillmanns, of Leipzig.

MESSRS. PERSIFOR FRAZER, Angelo Heilprin, Benjamin Smith Lyman and Theodore D. Rand have been appointed by the Academy of Natural Sciences of Philadelphia as the Committee on the Hayden Memorial Geological Award for 1896.

A NEW and thoroughly revised edition of Lyell's *Student's Elements of Geology* is about to be published by Murray. The work has been carefully revised by Prof. J. W. Judd, Dean of the Royal College and a former pupil of Lyell's.

A SPECIAL despatch to the New York *Evening Post* from New Haven states that on January 13, 1893, John E. Lewis, of Ansonia, while photographing Holmes' comet through a telescope, caught upon the plate the path of a large meteor showing its place among certain stars. Prof. H. A. Newton, of Yale, made a very careful computation showing that the meteorite probably fell at a place about two miles north

of Danbury, Conn., near Kohanza reservoir. Prof. Newton has now received intelligence of the finding of a meteorite at almost exactly the computed point. It is described as an oval specimen, fifteen and a-half inches long, and seven and a-half inches in diameter, weighing twenty-six pounds.

THE New York *Medical Record* states that an offer has been made by an inventor to the municipality of the city of Paris to sterilize five thousand cubic meters daily of water for public consumption at his own expense. After preliminary inquiry the municipality has decided to obtain an expert report upon the value of the proposed measure, and if it is found to be of practical utility the inventor's offer will be accepted as a preliminary to adopting the system in case the experiment is satisfactory.

Nature states that the annual general meeting of the British Ornithologists' Union was held at 3 Hanover Square on April 22d. In the absence of Lord Lilford, the President, Mr. P. L. Slater, F.R.S., took the chair. The report of the Committee stated that *The Ibis* (the journal of the Society) had been regularly published during the preceding year, and that the Union consisted of 269 ordinary members, besides honorary and foreign members. Twenty-nine new ordinary members and one new foreign member were proposed and elected. Mr. Slater brought forward a scheme for a new synopsis of the described species of birds, to be arranged in six volumes, corresponding with the six zoölogical regions of the earth's surface. This was referred to a committee to report upon.

VOLUME I., of the University Geological Survey of Kansas, by Prof. Erasmus Haworth and assistants, is now ready for distribution and may be had free by recipient paying transportation, which is twenty-two cents if sent by mail. All applications should be sent to Chancellor F. H. Snow, University of Kansas, Lawrence, Kansas.

DR. GEORGE A. DORSEY, who has been an instructor at the Peabody Museum during the last five years, has accepted a call to the Field Columbian Museum of Chicago, to take the position of curator in the department of anthro-

pology. Mr. Frank Russell, of the graduate school, has been appointed assistant in anthropology to take Dr. Dorsey's place as instructor in the preliminary anthropological courses next year.

THE State Fair Association of Rhode Island offers \$5,000 in prizes for the exhibition and competition of horseless carriages at the State Fair, Narragansett Park, in September.

THE Committee of the Massachusetts Legislature has reported in favor of an appropriation of \$100,000 to be used for the extermination of the gypsy moth. The Committee recommends that one or two entomologists be sent abroad to study the habits of the gypsy moth with a view to introducing, if possible, some parasite to prey upon the insect.

ANDREW S. FULLER, a writer on agricultural and botanical subjects, died on May 4th, at his home at Ridgewood, N. J., age 88 years. The death is also announced of Alfred Debains, professor at the agricultural college at Rennes.

PROF. ANGELO HEILPRIN has been appointed to represent the Academy of Natural Sciences of Philadelphia at the Mining and Geological Millennial Congress to be held at Budapest, September 25th and 26th, in connection with the celebration of the founding of the Kingdom of Hungary.

MR. GILBERT BOWICK has purchased for the British Antarctic Expedition, which leaves England in September, the survivors of the pack of dogs acquired by Lieut. Peary from the Esquimaux of North Greenland. They will be brought from Christiania and placed for the present in the London Zoological Garden.

AT a meeting of the Royal Geographical Society on April 27th the President announced that the annual honors had been awarded by the Council as follows: The Founders' Medal to Sir William Macgregor, K.C.M.G., for the valuable geographical work he has done in New Guinea during the years that he has acted as Administrator and Lieutenant-Governor; the Patrons' Medal to Mr. St. George R. Littledale for his important expeditions in the Pamirs and Central Asia; the Murchison award has been given to Khan Bahadur Yusuf Sharif, native Indian surveyor; the Gill memorial to Mr. A.

P. Low, of the Canadian Survey, for his explorations in Labrador; the Black grant to Mr. J. Burr Tyrrell for his expeditions to the Barren Grounds of northwest Canada; and the Cuthbert Peek grant to Mr. Alfred Sharpe for his many journeys in British Central Africa. The following geographers have been made honorary corresponding members of the Society: M. de Semenoff, Vice-President of the Russian Geographical Society; Dr. Von den Steinen, President of the Berlin Geographical Society; Dr. G. Neumayer, Director of the Naval Observatory, Hamburg; M. de Lapparent, President of Council of the Paris Geographical Society; Dr. Albrecht Penck, Professor of Geography, Vienna University; Dr. Otto Pettersson, the Swedish oceanographer; Dr. Kan, President of the Dutch Geographical Society; Prof. H. Pittier, Director of the National Physico-Geographical Institute of Costa Rica.

STILL another welcome contribution to our knowledge of the changes of plumage in birds is a paper by Witmer Stone entitled *The Molting of Birds with Special Reference to the Plumages of the Smaller Land Birds of Eastern North America*. This appears as a separate from the Proceedings of the Natural Sciences of Philadelphia and discusses in more or less detail the molt of some 130 species. A captious critic might, perhaps, complain that in some cases the conclusions were based on an examination of rather a small number of specimens, but only one who has undertaken similar investigations can appreciate the difficulty of obtaining proper material and the labor involved in its study. There is an introductory chapter treating of molt in general, in which Mr. Stone briefly discusses the question of direct change in the color of feathers and states that he cannot admit that we have any proof of an actual change of color in a feather apart from what may be produced from abrasion or bleaching. The author, by independent investigation, reaches the same conclusion as Mr. Chapman in regard to the change of color in the Dunlin and Snowflake. There has been abundant *testimony* to change of color in feathers without molt, and it is now in order for some one to produce a little evidence.

Two interesting additions to the alums have

been recently made by Piccini and are described in the *Gazetta Chimica*. By the reduction of a sulfuric acid solution of vanadium dioxid in the electrolytic cell in the presence of an alkali-sulfate an alum is formed. The ammonium vanadium alum is very soluble, those of rubidium and cesium much less so. By a similar reaction Piccini has obtained the cesium titanium alum, the first of the titanium sulfates to be formed. These salts are the first representatives of the alums among the elements of the fourth and fifth groups of the periodic system.

THE question as to the fusibility of platinum in a carbon heated furnace seems at least to have been definitely settled by Victor Meyer. A sheet of platinum completely enclosed in a mass of fire clay was fused to a globule in a blast furnace heated with gas carbon. In this case action of carbon or of furnace gases on the platinum was absolutely excluded. Under similar conditions an alloy of platinum with 25% iridium was unchanged.

IN the *Contemporary Review* for May, Dr. Alfred B. Wallace describes M. Elisée Reclus' proposed gigantic model of the earth, already noticed in this JOURNAL and argues that the construction of such a globe would be feasible and desirable. But he thinks that the scale proposed by M. Reclus, $\frac{1}{100000}$ should be reduced by one-half. This would give an internal diameter of 167 feet, and a scale of almost exactly a quarter of an inch to a mile. The chief point made by Dr. Wallace is, however, that the model should be placed on the inner surface of the sphere.

ACCORDING to *Nature*, on July 2d the Second International Congress of Applied Chemistry will open in Paris. In addition to strictly technical questions, the Congress will discuss the analytical processes needed for the guidance of manufacturers and the benefit of the consumer. The proceedings will be conducted in ten sections, and, judging from the number and interest of the questions which will be brought up in each, there will be no lack of work. The sections represent such diverse subjects as chemical products, electro-chemistry, coloring matters and dyeing, pharmaceutical products, metal-

lurgy and mining, sugar-refining, vintnery, brewing, distilling, agricultural chemistry, photography, alimentation and milk supply. The 'Association des Chimistes de Sucerie et de Distillerie,' which is organizing the Congress, has formed a committee, comprising several members of the French Government, a large number of members of the Institute, and many of the foremost men in science and industry in France. Further information with reference to the Congress can be obtained from M. Dupont, 156 boulevard Magenta, Paris.

UNIVERSITY AND EDUCATIONAL NEWS.

MRS. STANFORD has transferred to the trustees of Stanford University \$2,500,000, the amount of the bequest left by the late Senator Stanford.

MR. JOHN D. ROCKEFELLER has agreed to give Vassar College \$100,000 toward the erection of a new dormitory or a recitation hall.

AT a meeting of the trustees of Columbia University, on May 4th, Mr. E. A. MacDowell was appointed Professor of Music, and Dr. Franz Boas lecturer on physical anthropology. The name of the present faculty of the School of Mines was changed to that of the Faculty of Applied Science, which will be intrusted with the care of the School of Mines, the School of Chemistry, the School of Engineering and the School of Architecture. The building for the Department of Chemistry, to be erected as a memorial to the late Frederick Christian Havemeyer at a cost of about \$450,000, by his sons and daughters, F. C., Theodore A., Thomas J., and Henry O. Havemeyer, Mrs. Katherine B. Belloni and Mrs. L. J. Louisa Jackson, and by his nephew, Charles H. Senff, was formally accepted by the trustees.

THE sum of \$100,000 has been given by friends of Barnard College to pay the mortgage on the grounds, and secure the gift of \$100,000 for building purposes pledged on condition that the mortgage should be paid by May 9th.

THE summer school of Union College will hold a session of six weeks at Saratoga, from July 6th to August 14th. Thirty courses are offered. The ninth annual session of the Wisconsin summer school will be held at the University for six weeks, from July 6th to August 14th,